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Managerial Hubris, Trade-Associations, and Regulatory Knowledge in Micro-Firms

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Managerial Hubris, Trade-Associations, and Regulatory Knowledge in Micro-Firms

Abstract

To avoid breaking the law for regulatory non-compliance it is essential that micro-firm owner-managers are aware of deficiencies in their knowledge, so they can seek improvement, and avoid over-confidence (i.e. hubris) in their knowledge levels. Using newly collected survey data from micro-firms in the English accommodation sector and multivariate techniques, we explore the possibility of hubris by making a novel distinction between the Perceived- and Actual-Knowledge of regulation held by micro-firm owner-managers. Both Perceived-Knowledge (from self-assessment) and Actual-Knowledge (from a simple test) over four core areas of regulation are found to be different, generally poor, and suggestive of hubris. The relationship between these knowledge levels is further explored by considering the role of trade-association membership (since they support members) and attitude (since it effects learning). Attitude is found to be positively associated with both forms of knowledge, while trade-association memberships are also found to be associated with enhanced Perceived-, but not Actual-Knowledge. In light of our results we suggest several priority areas for improving Actual-Knowledge and self-assessment skills, and areas for future research.

Keywords: Micro-Firms, Regulation, Perceived-Knowledge, Actual-Knowledge, Trade-associations, Self-Assessment.

1. Introduction

Managers of all businesses must make decisions based on their knowledge and understanding of an ever-evolving set of regulations¹. However, in small firms and particularly micro-firms, the wide range of responsibilities and potential lack of skills or specialist knowledge may impact managers' knowledge and understanding of the applicability of particular regulations, and/or the detail of how they should be implemented (O'Dwyer and Ryan, 2000). For a business to succeed it needs to comply with all applicable regulations, whilst expending the least amount of resources in doing so. A poor level of understanding of regulations can result in misguided attempts at regulatory compliance, which risks incurring unnecessary costs and/or prosecution for breaking the law. For smaller firms, the resulting fines, reputational damage, and/or loss of business due to temporary closure can quickly exceed their limited resources (Boustras *et al.*, 2015; Shalini, 2009). It is therefore important to understand what managers' know and how much they think they know about the regulations applying to their business, and the sources of this Perceived- and Actual-Knowledge.

A potential danger is managers are liable to exhibit hubris (i.e. inappropriate overconfidence), meaning that they mistakenly believe their knowledge to be more accurate and complete than it truly is, thereby leading to ill-informed decision-making and unintentional non-compliance. There is a rich literature exploring managerial hubris in a variety of contexts, including entrepreneurship, unethical governance, and the decisions taken by corporate executives (Cassar, 2010; Haynes *et al.*, 2015; Hayward and Hambrick, 1997; Hayward *et al.*, 2006; Hiller and Hambrick, 2005; Judge *et al.*, 2009; McManus, 2016)². This literature suggests that hubris

¹ Regulation is the “*imposition of rules by government, backed by the use of penalties that are intended specifically to modify the economic behaviour of individuals and firms in the private sector*” OECD (1993, p.73).

² See Table 1 in Bodolica and Spraggon (2011) for an overview of hubris and its manifestations in managers/firms.

is a real concern for businesses and it is likely to be especially serious for micro-firms who lack the resources to withstand poor decision-making for a prolonged period. Typically, studies on regulation, particularly those involving micro-firms, assess the ‘burden’ of regulation but crucially fail to explore the level of knowledge and understanding that sits behind the assumed burden (Kitching, 2006; Kitching *et al.*, 2015). Furthermore, micro-firms are frequently overlooked in favour of larger ‘small firms’, while firms with no employees are often excluded, both in general terms, and in academic studies of regulation in particular (Arrowsmith *et al.*, 2003; Greenbank, 2000; Russo and Tencati, 2009). Yet knowledge-of, and compliance-with, regulation is especially significant for micro-firms as managers often find themselves spread thinly, focusing on the day-to-day operations of their businesses (and hence ‘firefighting’) rather than finding time for business development (Falta and Gallery, 2011). They are also likely to suffer from a lack of managerial skill and experience, and wider business support (Carson, 1985; Johnson, 2002; O'Dwyer and Ryan, 2000) making them particularly vulnerable to hubris. For instance, Blackburn *et al.* (2015) find micro-firm managers often 'sort out problems on their own' and only 20% seek legal professionals when dealing with legal issues, despite lacking the expertise themselves. This makes micro-firms an ideal setting in which to explore regulatory knowledge, especially since they are also the most numerous type of businesses in the UK economy, accounting for 96% of all businesses, 32% of private sector employment, and 19% of private sector turnover (BEIS, 2016a).

The contributions of this paper are three-fold. First, a novel distinction is made between the Perceived- and Actual-Knowledge of regulation held by micro-firm owner-managers. This explores the idea that owner-managers might not know as much as they think they know, and hence allows for an investigation of hubristic behaviour. The second contribution expands on this by exploring the relationship between trade-associations membership and levels of

Perceived- and Actual-Knowledge, since these organisations provide their member firms with support in this area. The final contribution takes this further by examining the association between attitudes towards regulation and the levels of Perceived- and Actual-Knowledge, since attitude impacts an individual's approach to learning.

Throughout the paper explores the theoretical positions developed using original survey data of the English tourism industry and multivariate techniques. Four core areas of regulation are explored as they are areas where the relevant trade-associations are active and are widely applicable to most businesses, thereby broadening the potential impact of the results beyond the immediate case. The tourism industry is a fitting case for such a study as it predominantly comprises micro-firms (Tourism Alliance, 2016) and is highly regulated, with over 21,000 regulations estimated to be in effect (Tourism Regulation Taskforce, 2012). It is a significant sector in the UK economy, accounting for 9.5% of UK employment and contributing 7.1% of UK GDP (in 2014) (Tourism Alliance, 2016). Furthermore, Shaw and Williams (2009) argue there is little research into knowledge in a tourism context, and there are a substantial number of trade-associations in the industry (with high levels of membership) making it an ideal context in which to explore the issue of regulatory knowledge within micro-firms.

The remainder of this paper is set out as follows. Section 2 reviews the relevant literature, therein developing a number of hypotheses to be tested. Section 3 presents background on the chosen case, details of the survey that acted as the data source, and the methodological approach. Sections 4 and 5 then present, analyse, and discuss the results, before Section 6 briefly concludes.

2. Theoretical Background

2.1 Micro-Firms and Regulation

Micro-firms, defined herein as firms with 0-9 employees (BIS, 2016c; DTI, 1995), are distinguished by the role of the owner, who is likely to be both the manager and also highly active in all parts of the business (Edwards *et al.*, 2002; Kelliher and Reinl, 2009). Unlike in larger (small) firms where there may be specialist support within the business, micro-firm owner-managers must not only be the chief decision-maker, but also a specialist in many (perhaps all) aspects of the business including regulation (Lovatt and Pratten, 2003; Matlay, 1999; Tilley, 2000). With the owner-manager's time stretched across all aspects of the business, there may be scarce opportunity to research and implement applicable regulations, potentially leading owner-managers to view regulation as a distraction from core business activities or to perhaps even ignore them (Akinboade and Kinfack, 2012; Atherton *et al.*, 2008; Edwards *et al.*, 2004). Micro-firms are generally found to be informal in their operations, with business practices which do not strictly follow regulatory procedures (Arrowsmith *et al.*, 2003; Ram *et al.*, 2001; Saridakis *et al.*, 2013). It might therefore be supposed that knowledge of applicable regulations, and the associated challenges of ensuring compliance, are particularly problematic for micro-firms. However, the actual impact of regulation on micro-firms is unclear since most studies in this area have either tended to consider them to be part of a broad small or SME (Small and Medium Enterprise) segment (e.g. Crain and Crain, 2010) or exclude (at least some of) them from analysis (Achtenhagen *et al.*, 2017; BEIS, 2016b; Blackburn and Hart, 2002; Falk and Hagsten, 2015; Falk *et al.*, 2014; Granata *et al.*, 2017; Hänninen *et al.*, 2017).

Even when studies are relevant, they have been somewhat split in their conclusions making it difficult to establish a clear picture. Some studies have suggested small firms are indeed

disproportionately affected by regulation (e.g. Collard and Godwin, 1999; OECD, 2001). Indeed, Carter *et al.* (2009) identify a stream of work with such conclusions and suggest the basis of such regressive costs are because some compliance costs are (partially) fixed and hence do not increase in proportion to size. Other studies reach contrary conclusions (e.g. Edwards *et al.*, 2003; Hart *et al.*, 2008; Vickers *et al.*, 2005). A review by Kitching (2006) found issues with identifying the direct impact of regulatory changes, although did suggest issues surrounding “*lack of awareness of regulation [and] deliberate noncompliance*” (p.803) might be responsible for such findings.

Irrespective of the impact of regulation, owner-managers must continually maintain awareness of regulatory developments and then take appropriate action when necessary to preserve regulatory compliance. This fundamentally requires a suitable understanding of the regulations so they can be interpreted correctly. However, there is much evidence that small firm owners lack the solid knowledge and understanding of regulations required (Atkinson and Curtis, 2004; Harris *et al.*, 2012; Lovatt and Pratten, 2003; Marlow, 2003; Sjögrén and Syrjä, 2015; Westrip, 1986). These knowledge deficits might also impact upon the employees of the business, as many employees in small firms may lack awareness of relevant regulations or their own legal rights, instead relying upon the interpretations (correct or otherwise) of the owner-manager (Atkinson *et al.*, 2016). For instance, Hart *et al.* (2008) found 67% of small business owners took personal responsibility when dealing with new regulation and 58% personally trained existing employees, further emphasising the need for owner-managers to have their own clear understanding.

In light of these discussions it is clear knowledge of regulation is crucial for the success of micro-firms, but work on small firms suggest it is likely to be lacking. We can therefore specify:

H1: Actual-Knowledge of regulation will be poor.

2.2 Knowledge, Self-Assessment, and Attitude

Without a required qualification or formalised training programme for owner-managers of micro-firms, such individuals must assess their knowledge and then take action where it is thought to be lacking. Yet, most research (mainly in non-business contexts) reports that individuals are usually poor at assessing their own level of knowledge (Eva and Regehr, 2007, 2011; Gordon, 1991; Kruger and Dunning, 1999, 2002; Meeran *et al.*, 2016) suggesting that owner-manager hubris is a real possibility. Indeed, the review by Sitzmann *et al.* (2010) found 56% of studies reported self-assessment to be inaccurate, rising to 80% for the few studies on businesses.

Businesses provide few opportunities for structured testing given (owner-)managers' lack time (Johnson, 2002; Sauermann and Roach, 2013) and hence many studies simply accept self-assessment to be an accurate proxy for Actual-Knowledge (Akinboade and Kinpack, 2012; Atkinson and Curtis, 2004; Nag and Gioia, 2012; Weerasiri and Zhengang, 2012). However, Stokols *et al.* (2001) developed techniques with SMEs using Likert-scale type questions to ascertain the perceived level of managerial knowledge, before testing this with a series of questions. Similarly, Alaaeddine *et al.* (2013) tests SME knowledge with a bank of questions regarding different aspects of a new law.

Given the paucity of research into the accuracy of self-assessment in a business context, most especially in a micro-firm and regulation context, along with the propensity for accepting self-assessment despite apparent inaccuracies, we specify:

H2: There will be little/no correlation between Perceived- and Actual-Knowledge of regulation.

Edwards *et al.* (2003) and Hart *et al.* (2008) both note how the perception of a regulation affects the way small firm owner-managers react to it, including their efforts at compliance. This is particularly evident when a regulation is viewed as an unwelcome intrusion or an erosion of perceived common sense. They also found that (when pressed) owners tended to consider all regulations equally. IpsosMORI (2007) also demonstrate the importance of owner perceptions or misperceptions through interviews, finding particularly negative perceptions of newer regulations, or regulatory changes, which diminished with time. It would therefore seem perceptions of regulation can impact the effort owner-managers put towards researching and implementing responses to regulation. We therefore specify:

H3a: Perceived-Knowledge of regulation will positively correlate with attitude towards regulation.

H3b: Actual-Knowledge of regulation will positively correlate with attitude towards regulation.

2.3 Source of Knowledge

To better understand the Perceived- and Actual-Knowledge of regulation owner-managers possess, it is important to recognise the sources of their knowledge. Existing research has identified a number of information sources used by micro/SME firms, such as the internet, personal networks, the media, external professionals (consultants, accountants, etc.), and trade-associations (Bennett and Ramsden, 2007; Bennett and Robson, 1999b; King *et al.*, 2014; Peck *et al.*, 2012). Although ‘the internet’ is frequently listed as a source, it is in fact a conduit to sources of knowledge including: definitive official sources such as Government websites; and

potentially unreliable sources such as blogs/news websites. Furthermore, whatever the source, the owner-manager needs to correctly interpret any information gathered, which is far from certain. For instance, Peck *et al.* (2012) highlight that relevant information can be lost amid ‘media-noise’ and general negative opinion surrounding the reporting of regulatory matters.

Several studies note the extensive use of external professionals, mostly accountants, by small firms for business support and information seeking (BEIS, 2016b; King *et al.*, 2014; Pleasance and Balmer, 2013). However, the use of accountants may be over-reported as a source of wider support since the inherent complexities of financial matters, including payroll and taxation, make it difficult for owner-managers to ‘muddle-through’ hence support is often needed in this area. Indeed, there is limited research into what information and assistance owner-managers actually seek from their accountants beyond direct accounting matters, and it is unlikely accountants can provide robust support for wider regulatory matters (e.g. fire-safety requirements). Pleasance and Balmer (2013) found that while accountants were the most frequently used independent source of support in general, for regulatory matters, it is actually trade-associations that small firms turn towards. However, while much of the research into trade-associations investigates their lobbying role and/or their relationships with larger firms (Barnett, 2018; Bennett, 1998, 2000; Kahl, 2018; Lawton and Rajwani, 2018; Lawton *et al.*, 2018; Rajwani *et al.*, 2015; Spillman, 2018), there is comparatively less into their role as a conduit for disseminating information among their members, or their relationship with smaller firms.

Trade-associations can provide accurate and tailored information on relevant regulations given their inherent expertise (and may also generate further benefits as they offer an extensive range of services, such as legal, financial, and marketing advice) (BEIS, 2016b; Bennett, 2011; Bennett and Ramsden, 2007; Lawton *et al.*, 2013; Tomlinson, 2012). As such trade-

associations may contribute significantly towards the apparent shortfall of resources and capabilities which micro-firms often suffer due to their inherent size.

Information and advice have both been identified as a specific reason for sustaining SME trade-association membership (Bennett and Ramsden, 2007; Lawton *et al.*, 2013). Indeed, Battisti and Perry (2015) found that unlike larger firms, SMEs favoured access to individual advice over other services available. They also found improved awareness of industry issues and ability to cope with problems were among the strongest benefits that SMEs achieved through membership. In the context considered herein, potential mechanisms for knowledge enhancement include regular emails and/or magazines/books sent to members with detailed information on regulatory issues (see section 3.1 for more detail). It therefore seems likely trade-associations have a role in enhancing the regulatory knowledge of micro-firms, thereby offering an opportunity to explore our two-dimensional view of knowledge, and hence we specify:

H4a: Membership of trade-associations will be positively associated with Perceived-Knowledge of regulation.

H4b: Membership of trade-associations will be positively associated with Actual-Knowledge of regulation.

However, sources of information on topics such as regulation are not in themselves enough, as Bennett and Robson (1999a) note SMEs have a greater need for assistance, but are less likely to seek it. As noted, owner-managers must appreciate the level of their knowledge in order to identify areas where they may be lacking. One mechanism which is often cited as improving knowledge self-assessment, is feedback (Krajc and Ortmann, 2008; Sitzmann *et al.*, 2010). For

example, trade-associations may disseminate knowledge to their member firms through internal publications or email. This unidirectional knowledge transfer, an example of what Salge and Vera (2013) termed ‘radical learning’, lacks any form of feedback, thereby relying upon member firms (and owner-managers in particular) to both read and correctly interpret the information available. That is far from certain. As such, trade-association membership may well enhance Actual-Knowledge but might also engender hubris via an over-inflated sense of Perceived-Knowledge relative to the benefit actually provided. We therefore specify:

H5: Membership of trade-associations has a greater positive association with Perceived-, rather than Actual-Knowledge.

3. Methodology

3.1 Contextual Background

To explore these issues, this study draws upon an original survey exploring regulation and micro-firms in the English holiday-accommodation industry. The focus is on England rather than the UK due to regulatory differences between the UK’s devolved regions. As mentioned in Section 1, the tourism industry is a suitable case to explore these themes as it not only accounts for a significant share of the economy, but is also predominantly made up of micro-firms with a large number of regulations (Blackburn and Hart, 2002), the majority of which are noted to be “*ill-fitted to the world of small businesses that characterise*” the industry (House of Commons, 2015, p.3). Additionally, BEIS (2016b) found firms in the industry were most likely to claim regulation is an obstacle to success. Indeed, two of the trade-associations in the sector (The BBA and BedPosts) formed as a direct response to changing fire regulations (BBA, 2014; BedPosts, 2014).

Within the English accommodation industry, the focus is on two main sub-sectors where micro-firms are most likely to proliferate: serviced accommodation, such as Bed and Breakfasts (B&Bs) and hotels, of which there are an estimated 33,499 firms; and non-serviced accommodation, such as caravan parks and self-catering accommodation, of which there are an estimated 34,167 firms (VisitEngland, 2016). The sub-sectors not only define the services on offer, but also the regulations in place. For example, serviced firms are more likely to provide food and fall under food preparation regulation, while non-serviced firms are more likely to provide electricity and water to pitches, and hence are subject to related regulation.

The industry is home to many trade-associations and marketing groups, such as the Bed and Breakfast Association (BBA), the British Hospitality Association (BHA), BedPosts, British Holiday & Home Parks Association (BH&HPA), and FarmStayUK. Each of which provide their members with support regarding business operations and crucially, dealing with regulation. For example: the BBA regularly email and distribute a monthly magazine to their 8000 members (BBA, 2014); and the BH&HPA send a bi-monthly *BH&HPA Journal* to their 2900+ membership which dedicates a significant proportion of its 100+ pages to regulatory matters (BH&HPA, 2017).

In addition to these industry associations, there are many associations which operate across the wider tourism industry, such as VisitEngland, the national tourist board (who distribute their yearly *Pink Book* guide to accommodation regulation); and the Tourism Alliance, which operates as a ‘trade-association of trade-associations’ representing a combined 200,000+ tourism firms (Tourism Alliance, 2017). Furthermore, in the context of micro-firms, there is also significant overlap with associations such as the Federation of Small Businesses, who perform many of the same actions we have listed, but specialise in small business matters.

3.2 Sampling Frame and Survey Design

A database of 3805 potential respondents was developed using several publicly available sources. These include the AA, bedandbreakfast.com, BedPosts, the Caravan Club, the 'Little Green Book', FarmStayUK, the Motorcaravanners Club Handbook, and UKParks.com. The sampling frame was limited to firms operating in England and to those with fewer than 10 employees. The owners were contacted via post and/or email, addressed by name where known or 'the owner' where unknown, with several follow-ups over a six-month period from October 2014. There were 706 valid responses, which represents a highly respectable 19% response rate, given the sampling frame (Saunders *et al.*, 2015).

The questions were first pilot tested by a subset of relevant potential respondents and the main industry associations (as outlined below) were approached with a draft of the survey to check the wording of the questions and to secure endorsements in the hope of enhancing response rates. A small number of minor changes were made in response to the feedback received from both sources, and the finalised survey was endorsed by the BBA, the BHA, and FarmStayUK; all of whom sent details of the study to their members. VisitEngland, the national tourist board, endorsed the study and included details in email and print publications. A further three groups (BedPosts, the National Caravan Council, and the Tourism Society) sent information about the study to their members without a formal endorsement.

The survey explored owner-manager knowledge in four areas of regulation: employment; anti-discrimination; fire; and health and safety. These areas were chosen because of their applicability not only within the tourism industry, but due to their wide reach and overall importance given they impact on almost all firms that either have employees or allow access to members of the public. Due to the restricted nature of the questions and the different micro-firms being surveyed, respondents were only asked about regulatory areas relevant to their

business. The survey is part of a wider research project exploring regulation and micro-firms, and included additional questions which are not relevant to this study³.

In addition, an unsolicited general comments box was included at the end of the survey. Present in 197 cases, these comments were analysed using constant-comparison thematic analysis (Krueger and Casey, 2009). The emergent themes, presented in the discussion of our results (Section 5, Table 8), offer further insight and support to our primary quantitative analyses.

3.3 Analytical Approaches, Model Specification, and Variable Construction

In light of the hypotheses developed in Section 2, we deploy two techniques to explore the relevant issues. The first group (H1-H3) require the exploration of the revealed levels of Perceived- and Actual-knowledge (including the respondents' view of the value of regulation) which are most appropriately examined using summary statistics and bivariate correlations (Ward *et al.*, 2002). The second group of hypotheses (H3-H5) explore the overall determinants of Perceived- and Actual-Knowledge of regulation, using a formal model as specified below:

$$\begin{aligned}
 & \text{(Perceived or Actual) Knowledge of regulation} \\
 &= B_0 + B_1 \text{ Number of employees} + B_2 \text{ Years in business} \\
 &+ B_3 \text{ Serviced accommodation} + B_4 \text{ All areas of regulations included} \\
 &+ B_5 \text{ Attitude towards regulation} \\
 &+ B_6 \text{ Number of trade association memberships} + \varepsilon_i
 \end{aligned}$$

The model is applied to both Perceived- and Actual-Knowledge as the dependent variable and incorporates a number of control variables (discussed below). Since both dependent variables are continuous and scalar, with the higher values clearly indicating owner-managers have more (actual or perceived) knowledge of regulation, an OLS regression model is adopted. This is

³ This paper is part of the PhD project of the leading author, which explores further themes, including the Perceived-Burden and Value of regulation, perceived industry compliance, and business performance.

possible because, as Carifio and Perla (2008), Gaito (1980), and Dougherty (2011) identify, although the dependent variables incorporate several ordinal data sources (i.e. individual Likert-scale responses) they become interval results at the scale level due to their nature as combinations of responses to multiple questions. Furthermore, the central limit theorem suggests the resulting data will tend to be normally distributed and hence it is widely acknowledged that parametric techniques, such as OLS regression, are appropriate (Carifio and Perla, 2008; Dougherty, 2011; Norman, 2010)⁴. Indeed, not only do Blackburn and Hart (2002) utilise this method for combined test scores, but Norman (2010, p.7) notes that “*parametric statistics can be used with Likert data...with no fear of ‘coming to the wrong conclusion’*”.

The models (indeed all of our analyses) are estimated in Stata v13, first by including the control variables and then sequentially, the independent variables. The primary variables utilised (in both types of analysis) are as follows.

3.3.1 Dependent Variables

Actual-Knowledge was based upon a set of five true/false questions for each of the four specific areas of the regulation (20 in total). As it is impossible to assess every single aspect of regulation in a manageable survey, the questions, detailed in Table 1, were developed using a number of sources, most notably The Pink Book (VisitEngland, 2012, 2014), with varying levels of complexity based on routine knowledge of regulations. Recognising the inherent

⁴ Given the dependent variables are the mean values derived from up to four areas of regulation (see Section 3.3.1) the values are non-integer, meaning that alternative methods, such as ordered-probit are problematic due to issues with data loss because of the required rounding and/or the resulting large number of cut-off points. Such alternatives have however, been explored in a variety of ways (including utilising rounded values, and categorised groupings) and the results are consistent with the ones presented herein. Simple aggregation of the results from the different areas of regulation was also explored (e.g. using the total number of correct responses) but this was found to be inherently biased since it treated individuals the same whether they had answered 20 or fewer questions. Thus, we report these OLS models because they are not only statistically valid but also because they utilise all our data variation and are the easiest to interpret.

potential for bias in basing this construct on a relatively small number of questions, they were written such that the correct responses were both true and false (across the survey), and some questions were framed to test up-to-date knowledge by presenting out-of-date information which was no longer true. To minimise the subjectivity of the questions and to ensure they gave equal treatment to the four areas of regulation, the questions were developed-with and approved-by the supporting trade-associations, and tested using the pilot study. A similar method for testing knowledge was successfully employed by Alaaeddine *et al.* (2013) and Blackburn and Hart (2002). The latter covered more areas of regulation, but did so using fewer questions per area (1-5) resulting with a similar total of questions (21).

The ability of respondents to correctly answer these questions generates a 0-5 variable for each area of regulation. However, as the survey was structured to allow respondents to skip areas not relevant to them, the overall Actual-Knowledge of regulation was calculated as the percentage of questions correctly answered relative to the number attempted (i.e. X out of 20 for those attempting all four areas, and X out of 15 for those doing 3 areas). A dummy variable (see Section 3.2.2) was included to control for any differences caused by not completing questions on all areas of regulation.

Table 1 lists the mean percentage of correct responses, and associated standard deviations, for each question. Figure 1 demonstrates the distribution of responses, revealing there is a good range with an approximately normal distribution. Table 2 presents the correlation between Actual-Knowledge of each individual area of regulation against the overall Actual-Knowledge indicator. The strong and consistent correlations (row 5) demonstrate the overall indicator for Actual-Knowledge is not driven by one area alone, which suggests the measure is valid.

Table 1: Actual-Knowledge questions with mean percentage correct

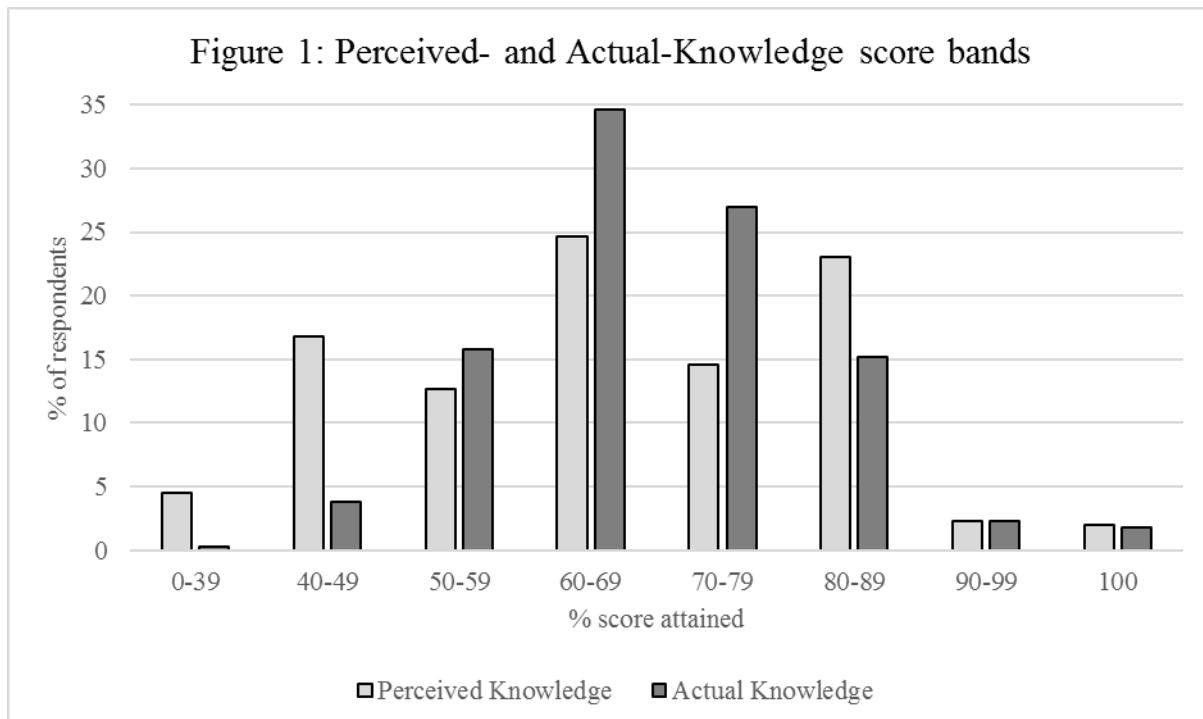
Employment	Mean % Correct	SD	Anti-Discrimination	Mean % Correct	SD
From October 2014, the minimum hourly wage for someone over 21 is £6.50	88	32.2	Firms are required to make reasonable changes for disabled customers	94	24.2
Full time staff can have payment in lieu of holidays	46	49.9	Large single-sex groups may be refused service	61	48.9
Family members who work for the firm can be paid below minimum wage	19	39.3	Customers may be refused service based on their age	40	49.1
If an employee is 'on call', they are only entitled to be paid for time when they are actually doing something for the business	64	48.1	The onus is on disabled customers to highlight, rather than businesses to check for any special requirements	70	45.7
It is a civil offence to pay an entitled employee below minimum wage	11	31.8	Properties with more than one storey should install an elevator for wheelchair users	82	38.1
Fire	Mean % Correct	SD	Health and Safety	Mean % Correct	SD
A fire risk assessment is only required for medium and large organisations	92	27.6	All businesses must appoint a health & safety officer	54	49.9
If no more than six people can be accommodated on the premises and all accommodation is not above the first floor (the six bed-space rule), then the business is exempt from fire regulations	79	40.5	Employers are always liable when employees fail to follow safety instructions in the workplace	44	49.6
A fire risk assessment can only be written by a qualified assessor	84	36.6	A health & safety inspector may enter any part of the premises at any time	80	39.7
An automatic fire-detection and alarm system must be installed in the premises	71	45.6	Firms with five or more employees must have a written health & safety policy	93	25.1
All local fire service apply the same interpretation of the regulations and your potential risks	43	49.5	Family businesses which are incorporated as limited companies do not need employers liability insurance	97	18.3

Note. The question stem before these statements read “*from your knowledge of [each] regulation, is it strictly true or false that*”.

Table 2: Correlation matrix for Actual-Knowledge

	1	2	3	4	5
1. Actual knowledge of health and safety	-				
2. Actual knowledge of employment	0.160*	-			
3. Actual knowledge of anti-discrimination	0.132*	-0.075	-		
4. Actual knowledge of fire	0.069	0.025	0.034	-	
5. Actual-Knowledge of regulation (overall)	0.621*	0.563*	0.582*	0.589*	-

* $p < .05$



Perceived-Knowledge was self-reported by respondents using a five-point Likert-scale for each area of regulation, based upon the work of Stokols *et al.* (2001) and Eva *et al.* (2004). As

with Actual-Knowledge, respondents could skip areas of regulation not relevant to them. Hence Perceived-Knowledge of regulation was calculated as the mean response over all of the individual areas answered (e.g. someone answered 3/5, 3/5 and 4/5 for three areas of regulation would have a mean of 3.333/5). This was then converted into an overall percentage (3.333/5 equates to 66.66%) to facilitate comparability with Actual-Knowledge. A dummy variable (see below) was again included to control for any differences caused by not answering for all areas of regulation. The distribution of responses is presented in Figure 1. As with Actual-Knowledge, Table 3 presents the correlation between Perceived-Knowledge of each area of regulation against the overall indicator. Again, the strong and consistent correlations (row five) demonstrate the overall indicator is not driven by one area alone, and demonstrates the validity of the measure.

Table 3: Correlation matrix for Perceived-Knowledge

	1	2	3	4	5
1. Perceived knowledge of health and safety	-				
2. Perceived knowledge of employment	0.397*	-			
3. Perceived knowledge of anti-discrimination	0.488*	0.576*	-		
4. Perceived knowledge of fire	0.541*	0.404*	0.544*	-	
5. Perceived-Knowledge of regulation (overall)	0.777*	0.802*	0.855*	0.802*	-

* p<.05

3.3.2 Independent Variables

Further questions were asked regarding respondent's perceptions of regulation and control data regarding the respondents' business, leading to the following variables to be used:

Number of employees: a categorical variable (0/1) distinguishing between the number of people working in the firm, including the owner-manager. The base category (0) is 1 worker, indicating the owner-manager works alone, while category (1) designates 2-9 workers, which may indicate a family-based firm or one with employees. This distinguishes the smallest and least complex firms, from those who are larger and may fall under wider regulation.

Years in business: a categorical variable (0/1) which indicates the number of years that the current owner-manager has operated the business, with 1-10 years (the base category, 0), and 11+ years (cat 1). Fewer years in business may indicate the firm is new or expanding, while category 1 designates an established business and an owner-manager who is more experienced with regulatory issues and change (Carter *et al.*, 2009).

Serviced accommodation: a categorical (0/1) variable where 1 indicates serviced accommodation, while 0 indicates non-serviced accommodation. This designates the level of service provided and may impact the type of regulation and enforcement placed on each firm, along with inferring to which trade-associations each firm may be a member.

Attitude toward regulation: the level of agreement (0-7) to the statement "*it is important to me that my business is compliant with regulation.*" This attitude informs the importance that owner-managers' place on regulatory issues and on maintaining their level of knowledge to ensure compliance (Edwards *et al.*, 2003; Hart *et al.*, 2008; IpsosMORI, 2007).

All areas of regulation included: as the values of Perceived- and Actual-Knowledge are determined by the mean score of up to four areas of regulation, this categorical variable

distinguishes between those who answered for all four areas (cat 1) and those who did not answer at least one area (cat 0). Forcing respondents to answer all areas creates bias as, for example, knowledge of employment regulations would be understandably lower for firms with no employees. This variable tests for any bias created by the different number of questions used to form the dependent variables.

Number of trade-association memberships: there is a high-level of trade-association membership within the sample, and this variable is a count of the number of trade-association memberships, thereby serving to distinguish the level of engagement with trade-associations. More trade-association memberships offer more potential information sources and may also suggest more meaningful engagement with these organisations.

3.4 Data Validation

For the construct variable Perceived-Knowledge, which is based on Likert-scale questions, Cronbach's alpha was calculated to test for convergent validity and was found to exceed the accepted minimum of 0.7 (DeVellis, 2012). Since Actual-Knowledge is not based on Likert-scale questions (and given the variation in individual test scores, see Table 1), Cronbach's alpha is not suitable. Face validity for Actual-Knowledge was satisfied by using a previously successful method of testing knowledge, though the specific content is obviously different (Hair, 1998; Hair *et al.*, 2010).

By collecting both dependent and independent variables from the same source, there is a risk of common method bias (Guide and Ketokivi, 2015; Podsakoff *et al.*, 2011). However, the very nature of the study, exploring the perceptions and knowledge of micro-firm owner-managers means there is only one owner-manager per organisation, thus it is impossible to investigate

multiple individuals per firm. To mitigate this as far as is possible, we gathered independently sourced data on several variables, such as revenue, profit, number of employees, and number of rooms/pitches. These details were collected from sources including firm websites, trade publications, and financial data submitted to Companies House. This verification was done for 14% of the survey responses (the maximum possible) and no evidence of bias or misreporting was found. Furthermore, through a pilot study we were able to assess the understanding of questions matched our expectations. Thus the validity of subjective assessments is accepted (Rong and Wilkinson, 2011). In addition, the survey was structured to separate key areas and reduce the risk of respondents linking different concepts. Finally, all respondents were assured of confidentiality and anonymity throughout the survey process to elicit truthful responses.

With any econometric method there is an inherent risk of omitted variable bias (Hosman *et al.*, 2010), yet there is also considerable evidence that simply adding confounders will equally bias the model (Clarke, 2009; Hosman *et al.*, 2010). We therefore followed the approach laid out by Clarke (2005) and Mitra and Washington (2012), whereby a review of the literature is used to suggest what variables may demonstrate a relationship with the dependent construct. In addition to the control variables included, we also tested other commonly used confounders, such as gender and region, which were found to be non-significant and have little association, thus they were not included in the study as Breiman (1992) and Clarke (2005) suggest fewer variables lead to more accurate models. Furthermore, our models are similar to those used by Blackburn and Hart (2002), whom include many of the same variables (albeit operationalised differently), culminating in similar R-squared results. Finally, in order to verify our models robustness, we examined the residuals and found them to be randomly distributed with no major deviation from normality (Pallant, 2011; Tabachnick and Fidell, 2013).

4. Results

Table 4 presents the mean, standard deviation, and correlations for Perceived- and Actual-Knowledge, along with attitude towards regulation. Considering the range of questions used to develop Actual-Knowledge covered routine knowledge, we would expect informed owner-managers to achieve close to 100%. Given Kane's (2013) view that it is up to the test author to determine a measure of success, we would therefore suggest any score significantly below this identifies poor knowledge as it implies owner-managers were lacking a substantial amount of functional knowledge. A mean score of 65.92% (median of 67%) with standard deviation of 12.13, and just 4.07% scoring 90% or more (see Figure 1), suggests respondents generally held a poor level of knowledge and hence H1 is supported (see Table 7 for a hypotheses summary). Moreover, the mean score for Perceived-Knowledge is 62.25% (median of 65%) with a standard deviation of 16.54, demonstrating owner-managers know they possess incomplete knowledge.

Table 4: Descriptive statistics for Independent Variables

	Mean	SD	1	2	3
1. Perceived-Knowledge of regulation	62.25	16.54	-		
2. Actual-Knowledge of regulation	65.92	12.13	0.096*	-	
3. Attitude toward regulation	5.97	1.09	0.260*	0.112*	-

* $p < .05$

Table 4 also provides support for H2, as there is only a very small correlation between Perceived- and Actual-Knowledge. This suggests owner-managers are generally quite inaccurate in assessing their level of knowledge (which can be further seen from the differences

in the distribution of Perceived- and Actual-Knowledge as illustrated in Figure 1). Finally, Table 4 demonstrates small but statistically significant correlations between attitude towards regulation and both Perceived-Knowledge and Actual-Knowledge, providing support for H3a and H3b. However, the coefficient with Perceived-Knowledge (0.260) is more than twice that with Actual-Knowledge (0.112).

Table 5 presents the OLS regression models for Perceived-Knowledge, first with just the control variables, then (model 2) with all independent variables in place. Table 6 presents models for Actual-Knowledge. In both cases the models improve with the inclusion of the exploratory variables. These offer further support for H3a and H3b given the highly statistically significant, positive links between attitude and both Perceived- and Actual-Knowledge, although as before, the coefficient with Perceived-Knowledge (3.82%) is greater than that with Actual-Knowledge (1.15%).

Table 5: OLS regression. Dependent variable: Perceived-Knowledge						
Independent variables	(1)			(2)		
	β	SE	<i>t</i>	β	SE	<i>t</i>
Intercept	62.27***	1.85	33.73	38.16***	4.81	7.94
Number of employees	-4.10**	1.78	-2.30	-4.94**	1.87	-2.64
Years in business	0.85	1.48	0.58	0.88	1.56	0.56
Serviced accommodation	4.51**	1.61	2.80	3.76**	1.73	2.17
All areas of regulation included	3.25*	1.74	1.88	2.06	1.84	1.12
Attitude toward regulation				3.82***	0.71	5.41
Number of trade-association memberships				1.39**	0.71	1.97
R ²		0.0442			0.1145	
Adjusted R ²		0.0363			0.1016	
F (4, 484)		5.60***				
F (6, 412)					8.88***	

* p<0.1, ** p<0.05, *** p<0.001

Table 6: OLS regression. Dependent variable: Actual-Knowledge

Independent variables	(1)			(2)		
	β	SE	<i>t</i>	β	SE	<i>t</i>
Intercept	69.89***	1.36	51.40	62.67***	3.56	17.42
Number of employees	-3.86**	1.32	-2.93	-3.21**	1.41	-2.28
Years in business	-4.10***	1.09	-3.75	-2.81**	1.17	-2.39
Serviced accommodation	3.32**	1.18	2.81	4.32***	1.30	3.32
All areas of regulation included	-0.66	1.27	-0.52	-0.23	1.38	-0.17
Attitude toward regulation				1.15**	0.53	2.17
Number of trade-association memberships				-0.57	0.53	-1.08
R ²		0.0669			0.0732	
Adjusted R ²		0.0591			0.0597	
F (4, 484)		8.67***				
F (6, 412)					5.42***	

* p<0.1, ** p<0.05, *** p<0.001

In the model for Perceived-Knowledge, there is a strong positive relationship with greater numbers of trade-association memberships. Every trade-association membership was associated with a 1.39% increase in Perceived-Knowledge. However, in the model for Actual-

Knowledge the relationship is statistically insignificant. These findings do not verify the causality in such a relationship but suggest some support for H4a and H5, but not for H4b.

The models also demonstrate a negative relationship for both Perceived- and Actual-Knowledge with the number of employees, suggesting owner-managers with 2+ workers have (respectively) 4.94%/3.21% less regulatory knowledge. Furthermore, serviced accommodation firms appear to have higher Perceived- and Actual-Knowledge (3.76%/4.32%). Additionally, while the number of years in business has no statistically significant relationship with Perceived-Knowledge, there is a strong negative relationship with Actual-Knowledge (-2.81%). Finally, the variable to test whether all areas of regulation were answered by each respondent, is shown to be statistically insignificant for both models, lending even further credence to the validity of our chosen method.

Table 7: Summary of hypotheses

H1	Actual-Knowledge of regulation will be poor	Supported
H2	There will be little/no correlation between Perceived- and Actual-Knowledge of regulation	Supported
H3a	Perceived-Knowledge of regulation will positively correlate with attitude towards regulation	Supported
H3b	Actual-Knowledge of regulation will positively correlate with attitude towards regulation	Supported
H4a	Membership of trade-associations will be positively associated with Perceived-Knowledge of regulation	Supported
H4b	Membership of trade-associations will be positively associated with Actual-Knowledge of regulation	Not supported
H5	Membership of trade-associations has a greater positive association with Perceived-, rather than Actual-Knowledge	Supported

Table 8: Thematic review of unsolicited comments

Theme	Number of mentions	Illustrative comments
Trade-association support	14	<p><i>Being part of a membership organisation probably makes me more aware of legislation and other issues, than independent operators (2016).</i></p> <p><i>Visit Britain have to reissue their Pink Book guide every year just to keep up with the continuous changes and additional restrictions (4031).</i></p> <p><i>I rely on the Caravan Club to guide me in matters regarding regulation of the Caravan Club site aspects of the business (5379).</i></p>
Firm size	72	<p><i>Our business is not only micro, it's miniscule! (1910).</i></p>
Lack of support	28	<p><i>Local councils should issue booklets on fire and health and safety – not seen anyone or had contact in 18 years! (1855).</i></p> <p><i>Setting up and building a new campsite has been far more difficult than it should have been. Very little support from council and licencing authorities (3106).</i></p>
Poor regulator understanding	7	<p><i>Too many regs are designed for large business then applied to small/micro businesses i.e. turnover less than 100k. Phrase sledgehammer & nut come to mind. I with only 6 letting rooms have to comply to same rules as Holiday Inn & Hilton types of hotels (4653).</i></p>
Knowledge and burden	87	<p><i>Good practice in my bed & breakfast is followed as a matter of routine but a diary RE: hygiene is a waste of my time which I deeply resent, cooking only 4 breakfasts max a day! (323).</i></p> <p><i>Regulations have a disproportionate impact on small businesses. Compliance sometimes has a very disruptive impact if you do the right thing e.g. maternity leave. We have no specialist resources to cover such things and nobody seems to appreciate that running a small business is like living in a turret with different types of regulator attacking from all sides (53).</i></p> <p><i>Feel many regulations designed across the board and do not always 'fit' to small business without incurring costs. Reduced my staff due to PAYE rules & regulations which meant more time on computer & away from hands on work (1963).</i></p> <p><i>I cannot pretend to spend my time trying to keep up with legislation. I understand that I should comply with the law and take reasonable effort to do so, however I rely more on treating customers as I would like to be treated (2142).</i></p> <p><i>The current situation is that there is so much legislation it is impossible to know & comply with all the regulations. Even specialist lawyers do not profess to know all the legislation in their specific fields and then refer to further 'specialists' (1570).</i></p>
Regulatory value	18	<p><i>I don't think there are many businesses that don't accept the need for certain regulations. Compliance of regulations is important but they do need to be made far more appropriate to micro businesses (2980).</i></p> <p><i>I believe that regulations are essential for the safety of the public (3804).</i></p>

5. Discussion

5.1 Perceived- and Actual-Knowledge

We found in micro-firms that Actual-Knowledge was poor in core areas of regulation, thereby extending the findings of previous literature which found similar results in (larger) small firms. Such a deficit of knowledge could, for example, be the difference between someone using safety equipment and someone else not even knowing it is available, and hence there is clear example of hubris with potential for negative impacts for firms, employees, and customers. Furthermore, the majority of respondents also identified Perceived-Knowledge as being considerably less than 100%, which is further suggestive of a wider notion of hubris in that owner-managers, by continuing to operate their firms, are knowingly acting with imperfect knowledge. As respondent 1570 put it: “*there is so much legislation it is impossible to know and comply with all the regulations.*” (Table 8, ‘knowledge and burden’). This implies that owner-managers are satisfied to continue operating their firms with limited efforts to rectify knowledge shortcomings.

Since Perceived- and Actual-Knowledge only weakly correlate, our results suggest self-assessment of regulatory knowledge to be a poor indicator of actual regulatory knowledge. This is not only in line with the majority of studies covered by Sitzmann *et al*’s (2010) review of self-assessment in general, but also casts doubt on micro-firm and/or regulation studies which rely on self-assessment. For the firm, poor self-assessment is likely to have a direct association with the ways in which owner-managers approach learning. If they believe their knowledge is ‘good enough’, they are unlikely to prioritise improving it, which suggests attempts at regulatory compliance will be based on a faulty understanding and knowledge deficits (and associated issues) will likely endure into the future.

In keeping with Edwards *et al.* (2003), Hart *et al.* (2008) and IpsosMORI (2007), we found attitude towards regulation has a positive association with knowledge. Moreover, since we unusually explored two measures of knowledge, our results show this association is markedly larger on Perceived- than Actual-Knowledge. The causality of this finding is unclear though, as knowledge might engender a positive view, or a positive disposition might encourage knowledge acquisition. In this regard, the unsolicited comments on the survey offer some insights (Table 8, ‘knowledge and burden’) as none supported the idea that knowledge engendered a positive view, and a number actively contradicted it. For instance, respondent 1878 noted: “*Good practice in my Bed & Breakfast is followed as a matter of routine but a diary RE: hygiene is a waste of my time which I deeply resent, cooking only 4 breakfasts max a day*”. Such comments are not explicit support for a positive attitude encouraging knowledge, but imply such causality by undermining the alternative.

The number of years in business was found to have no statistically significant association with Perceived-Knowledge, while having a negative link with Actual-Knowledge. Since our survey is not longitudinal, the effect of time on the knowledge levels of individual owner-managers is impossible to draw-out in detail. Carter *et al.* (2009) and Edwards *et al.* (2003) suggest the relationship with time is due to a resistance to change. However, the unsolicited survey comments (Table 8, ‘knowledge and burden’) hint at an alternative explanation: “*I cannot pretend to spend my time trying to keep up with legislation. I understand that I should comply with the law and take reasonable effort to do, however I rely more on treating customers as I would like to be treated*” (respondent:2142). It is possible Perceived-Knowledge remains broadly constant over time as past knowledge is assumed to be retained, but in the absence of significant continued learning, Actual-Knowledge declines as new regulations are developed/past knowledge is forgotten.

The negative relationship between both Perceived- and Actual-Knowledge with larger employee numbers is perhaps due to larger firms being busier, with the owner-manager spending more time supporting employees, leaving less time to allocate towards maintaining regulatory knowledge (as implied by comments relating to ‘firm size’, ‘knowledge and burden’, and ‘poor regulator understanding’, see Table 8).

Serviced firms were associated with higher Perceived- and Actual-Knowledge relative to non-serviced firms. A possible explanation is the serviced sector was subjected to a regulatory shock following the “*worst UK hotel fire in 40 years*” (BBC, 2011). This not only led to greater enforcement action but also the creation of at least two trade-associations, and hence likely engendered a more proactive regulatory mindset leading to a general increase in knowledge. Such a shock might also have exacerbated underlying differences due to non-serviced firms being subject to greater numbers of regulations because of the nature of their activities.

5.2 Trade-Associations

Given prior literature (and the lack of credible alternatives) we expected trade-associations to be a key source of regulatory knowledge, yet despite high levels of membership within the sample, Actual-Knowledge remained poor. Furthermore, while our results show that additional memberships have a small but positive association with Perceived-Knowledge (a 1.39% increase per additional trade-association membership), there is no statistically significant link with Actual-Knowledge. Yet, the survey comments suggest at least some owner-managers do rely on trade-associations support. Respondent 5379 for instance, offered: “*I rely on the Caravan Club to guide me in matters regarding regulation of the Caravan Club site aspects of the business*” (Table 8, ‘trade-association support’). This highlights the necessity of exploring

Perceived- and Actual-Knowledge independently, since a study of only self-assessed knowledge may have concluded that trade-associations are associated with ‘greater regulatory knowledge’ when in fact this only applies to Perceived- Knowledge. Furthermore, had we focused on a different potential source of knowledge, such as accountants, we may have drawn similar conclusions.

We posit the lack of impact on Actual-Knowledge may be due to: information overload, with time constrained owner-managers struggling to keep up with the influx of regulatory information from multiple sources; contradictory information, with different trade-associations interpreting and presenting information in different ways; or from a false sense of security as access to information from multiple sources creates over-confidence, meaning it is not consumed/interpreted by the owner-manager. All of these possible explanations highlight the inherent lack of feedback because while trade-associations may provide detailed and accurate information on regulation (e.g. via the *BH&HPA Journal*), there is no recourse to ensure information is read, understood, and implemented. It also highlights there is limited opportunity to demonstrate to owner-managers that their knowledge is lacking and hence they must seek to improve it.

It could be argued both Perceived-Knowledge and the number of trade-association memberships are in fact being influenced by a hitherto unexplored variable, such as the management style of the owner-manager; with more professional managers demonstrating greater Perceived-Knowledge and also choosing wider membership. However, this seems unlikely for two reasons. Firstly, we would expect such a professional management style to influence Actual- as well as Perceived-Knowledge, but our results found no such influence. Secondly, the ‘fire-fighting mentality’ (and the resource limitations) seen within micro-firms (Falta and Gallery, 2011), imply owner-managers are by necessity focused on day-to-day

operations, so have little time for professional development. Such constraints were highlighted by many unsolicited comments received in the survey (see Table 8, ‘regulatory burden’ and ‘poor regulator understanding’).

5.3 Improving Knowledge

Having identified a disparity in owner-managers’ Perceived- and Actual-Knowledge, and an overall shortfall in both, it is clear that knowledge levels need to improve. Whilst this is a long-term project requiring careful examination and further research, our results allow us to offer some preliminary insights.

Improving regulatory knowledge will be difficult since micro-firm owner-managers are reluctant to seek support and shun outside ‘interference’ (Blackburn *et al.*, 2015). For instance, the survey comments suggest ‘official sources’, including government and regulators, could certainly better connect with firms (Table 8, ‘lack of support’). Unfortunately, there is considerable evidence that such measures (e.g. including ‘regulatory updates’ with tax returns) would fail as prior attempts have proven unsuccessful (Blackburn, 2012; Blackburn and Hart, 2002). The challenge (as with any source) is that owner-managers would need to read, correctly interpret, and implement any guidance provided. However, Edwards *et al.* (2004) suggest they are likely to perceive it as ‘further burden’ and thus, ignore it. Furthermore, the ever-changing nature of government initiatives, such as the 2011/12 replacement of the popular BusinessLink (BRE, 2010), erodes owner-managers’ knowledge of how to access such support when desired.

Our findings suggest three areas for future action. Firstly, calibrating owner-managers’ self-assessment of their existing knowledge, thereby demonstrating the need for further training and

advice. However, while seminars and training sessions are an obvious start, micro-firms are reluctant to attend for a variety of reasons (Bennett and Robson, 1999a, b). A new approach is required which allows for remote learning and feedback. This could perhaps be achieved with tools such as case studies, quick-quizzes (e.g. in magazines), and incentives to participate (like prize draws). Additionally, given a preference for direct contact (BIS, 2016a, b; Peck *et al.*, 2012), follow-up phone calls could feature. Secondly, improving owner-managers' attitude towards regulation, as this will improve the likelihood of enhanced learning. Finally, micro-firms that are longer established and/or which have employees should be specially targeted, as they generally have the weakest knowledge levels.

Micro-firms have previously been found to access support through accountants (e.g. BEIS, 2016b), though as financial experts, they are not well placed to provide wider regulatory support on matters such as health and safety. Therefore, in the absence of credible alternatives and given the high levels of membership in the industry, along with what appears to be partial success in enhanced Perceived-Knowledge, we believe trade-associations may nevertheless present the best solution to improve knowledge of regulation among micro-firms, though further work needs to be done. Indeed, there is already evidence trade-associations currently provide “*more concise and reader-friendly*” guidance than the government (BRE, 2010, p.14). By enacting the suggestions above, particularly if an overarching trade-association, such as the Tourism Alliance, were to co-ordinate efforts to ensure consistency of information (Chittenden *et al.*, 2002), all three of Peck *et al.*'s (2012) aspects of information failure would be addressed by improving: the information available; the communication of that information; and knowledge acquisition (through perception and self-assessment). Furthermore, networking is known to shape owner-manager understanding (Kitching, 2016), thus networking with support firms, such as accountants, would also help to spread awareness of the tailored guidance, either

acting as an intermediary or by promoting trade-association membership (and the benefits therein).

6. Conclusions

Using newly collected primary data we have advanced our understanding of micro-firms, finding evidence that micro-firm owner-managers in the English tourism industry have an overall poor level of knowledge of four key area of regulations. Additionally, owner-managers' Perceived-Knowledge of regulation was found to be poorly aligned with their level of Actual-Knowledge. Such results suggest hubris is endemic within micro-firms, since owner-managers knowingly act with a knowledge deficit.

Despite past evidence that micro-firms rely on trade-associations for support (for regulatory and other matters), multiple trade-association membership was found to be positively associated with Perceived-Knowledge, while demonstrating no relationship with Actual-Knowledge. Nevertheless, in the absence of viable alternatives, we believe trade-associations remain a candidate to address the knowledge and self-assessment shortfall.

The findings herein should have lasting implications for efforts to improve managerial knowledge and research in a number of fields. Self-assessment has been demonstrated to be inaccurate which calls into question the myriad of business related research which utilise it to assess knowledge or changes in knowledge. It is therefore necessary for future research to both shift towards tests of Actual-Knowledge and for greater research into how such testing may be implemented, as we accept that our method has limitations. We explored core areas of knowledge using wording agreed with the relevant trade-associations, but our results will be somewhat dependent on the particular wording and choice of regulation adopted.

There is still much research to be done in order to fully explore these issues. Future studies using Actual-Knowledge might benefit from the creation of a standardised testing procedure, which would then help minimise use of inaccurate self-assessment. Such studies would also benefit from interviews with owner-managers, to better understand exactly how they receive and process information. This would help explain the causality in the relationships we have identified, explore the existing use of accountants, and examine how trade-association support improves Perceived-Knowledge but goes no further. Furthermore, the possibility that the disparity between Perceived- and Actual-Knowledge grows over time should be tested with a longitudinal study over a prolonged period. Finally, and in line with calls for greater research into trade-associations, we recommend their role in knowledge dissemination must be re-evaluated. Such research might enhance their ability to successfully impart knowledge. For example, one possible explanation for the disparity we found, could be that trade-associations favour larger member firms (which our sample could not explore), as they have greater time/resources for association matters (Lawton *et al.*, 2018). Future research could explore this possibility.

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